

Application for Letters Patent of

the UNITED STATES OF AMERICA by -

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Being citizens of -

THE UNITED STATES OF AMERICA

For:

LOAD TERMINAL COVER

Customer No.: 23569

LOAD TERMINAL COVER

CROSS-REFERENCE TO RELATED PATENTS

5 [0001] Not applicable

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

[0002] Not applicable

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FIELD OF THE INVENTION

[0003] The present invention relates to molded case circuit breakers, and particularly to a load terminal cover for molded case circuit breakers.

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BRIEF DESCRIPTION OF THE DRAWINGS

[0004] The features of the invention will become more clearly understood from the following detailed description of the invention read together with the drawings in which:

20 Figure 1 illustrates a typical multi-phase molded case circuit breaker and a load terminal cover assembly constructed in accordance with the present invention.

Figure 2 is an isometric view of load terminal cover constructed in accordance with the present invention.

25 Figure 3 is an isometric view illustrating the load terminal cover of Figure 2 installed on the circuit breaker of Figure 1.

Figure 4 is a cross-sectional view of one embodiment of the load terminal cover attachment feature.

5 Before one embodiment of the invention is explained in detail, it is to be understood that the invention is not limited in its application to the details of construction described herein or as illustrated in the drawings. The invention is capable of other embodiments and of being practiced or being carried out in various other ways. Further, it is to be understood that the phraseology and
10 terminology used herein is for the purpose of description and should not be regarded as limiting.

DETAILED DESCRIPTION OF THE DRAWINGS

[0005] Figure 1 illustrates a typical multi-phase molded case circuit breaker, generally indicated by reference numeral 10. The circuit breaker 10 includes a load end 14 in which the circuit breaker's load terminals 18 are located. Binding screw access apertures 22, which provide access to the load terminal binding screws 26, are defined in a top surface 30 of the circuit breaker 10 at the load end 14. The circuit breaker 10 also has a bottom surface 34, which is generally parallel to the top surface 30, and a load end wall 38 that extends between the top and bottom surfaces, 30 and 34, respectively. The load end wall 38 defines load terminal apertures 42 for receiving the load terminals 18. The load end 14 of the molded case circuit breaker 10 also includes apertures 46 for mounting hardware, such as screws (not shown), which secures
20 the circuit breaker 10 in a panelboard, switchboard, load center or other electrical enclosure (not shown). A load terminal cover constructed in accordance with the present invention is illustrated generally by reference numeral 50.
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[0006] Figure 2 illustrates, in greater detail, the circuit breaker load terminal cover 50, constructed in accordance with the present invention. Each

load terminal cover 50 includes an end wall 54, a top flange 58 and at least one bottom flange 62. The end wall 54 is dimensioned to cover the load end wall 38 of circuit breaker 10 and is intermediate the top and bottom flanges, 58 and 62, respectively. The end wall 54 defines at least one knockout 66 for each load terminal 18. The knockouts 66 can be of one predetermined diameter for a single load conductor 70 (Figure 3) or have number of tangential or concentric diameters, each of increasing diameter for a larger size load conductor 70 or multiple load conductors 70. The knockouts 66 are removed when the circuit breaker 10 is activated. The end wall 54 can also define electrical clearance features 74 such as a slot, groove, or rib, which provides the required over surface electrical clearance between adjacent electrical phases of different polarity. The top flange 58 is dimensioned to cover that part of the circuit breaker top surface 30 defining the binding screw access apertures 22. The top flange 58 defines at least one integrally formed attaching member 78, which terminates at a distal end 82, and one non-removable load terminal binding screw access cover 86 for each binding screw access aperture 22 of the circuit breaker 10. The load terminal binding screw access cover 86 is integrally attached to the top flange 58 by two pivot arms 90. In its normal position, each load terminal binding screw access cover 86 covers one binding screw access aperture 22 in the top surface 30 of circuit breaker 10. The load terminal binding screw access cover 86 is rotated upward or downward (see Figure 3) to permit access to the load terminal binding screw 26. The load terminal binding screw access cover 86 is dimensioned to be slightly smaller than the binding screw access aperture 22, and is shaped to generally conform with the shape of the binding screw access aperture 22. The bottom flange 62 also defines at least one integrally formed attaching member 94, which terminates at a distal end 98. The top and bottom flanges, 58 and 62 respectively, are approximately parallel to one another and configured to snugly slide over the top and bottom surfaces, 30 and 34, respectively, of the circuit breaker 10. In one embodiment, the attaching members 78 and 94 can be configured in the same manner such that the distal

ends 82 and 98 are angled inwardly toward each other. In this configuration, the distance between the two distal ends 82 and 98 is less than the distance between the top and bottom flanges, 58 and 62, respectively. In another 5 embodiment, one of the attaching members 78 or 94 can be configured as a hook 102 (Figure 1). The attaching members 78 and 94 are positioned on the top and bottom flanges, 58 and 62, respectively, for engaging features defined in the top and bottom surfaces, 30 and 34, respectively, of the circuit breaker 10. It is to be understood that the features to be engaged can be existing features that 10 originally were provided for other functions, thus permitting the installation of terminal covers 50 on older circuit breakers 10. For instance, in the first embodiment, the distal end 82 of attaching member 78 can engage the aperture 50 of the circuit breaker top surface 30 while the distal end 98 of attaching member 94 can engage an aperture, groove or similar recess defined in the 15 bottom surface 34 of circuit breaker 10. As shown in the cross-sectional view of Figure 4, the angle of the attaching member 78 is such that an attempt to slidably remove the load terminal cover 50 from the circuit breaker 10 causes the distal end 82 to further penetrate the aperture 46, thereby increasing the resistance to removal. The hook-like feature 102 of the second embodiment can engage a 20 protruding feature (not shown) on the bottom surface 34 of the circuit breaker 10.

[0007] It is to be understood that, although the description has been written in terms of a load terminal cover 50, in many molded case circuit breakers 10, the line end 106 (Figure 1) is configured in the same manner as the load end 14. Therefore, the load terminal cover 50, as described herein, can be also be 25 used on the line end 106.